

OPERATING SUMMARY

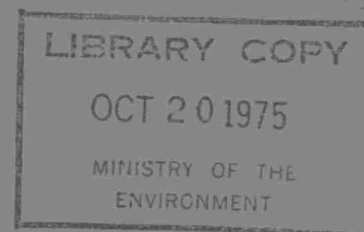
TOWNSHIP OF

EAR FALLS

WATER TREATMENT PLANT and
WATER POLLUTION CONTROL PLANT

TD227
E33
W38
1974
MOE

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EAR FALLS
WATER POLLUTION CONTROL PLANT
WATER TREATMENT PLANT

MINISTRY OF THE ENVIRONMENT

1974 ANNUAL OPERATING SUMMARY

prepared by

Plant Performance Unit

TECHNICAL SERVICES BRANCH

T. Cross, Director

TD227

E33

W38

1974

MOE

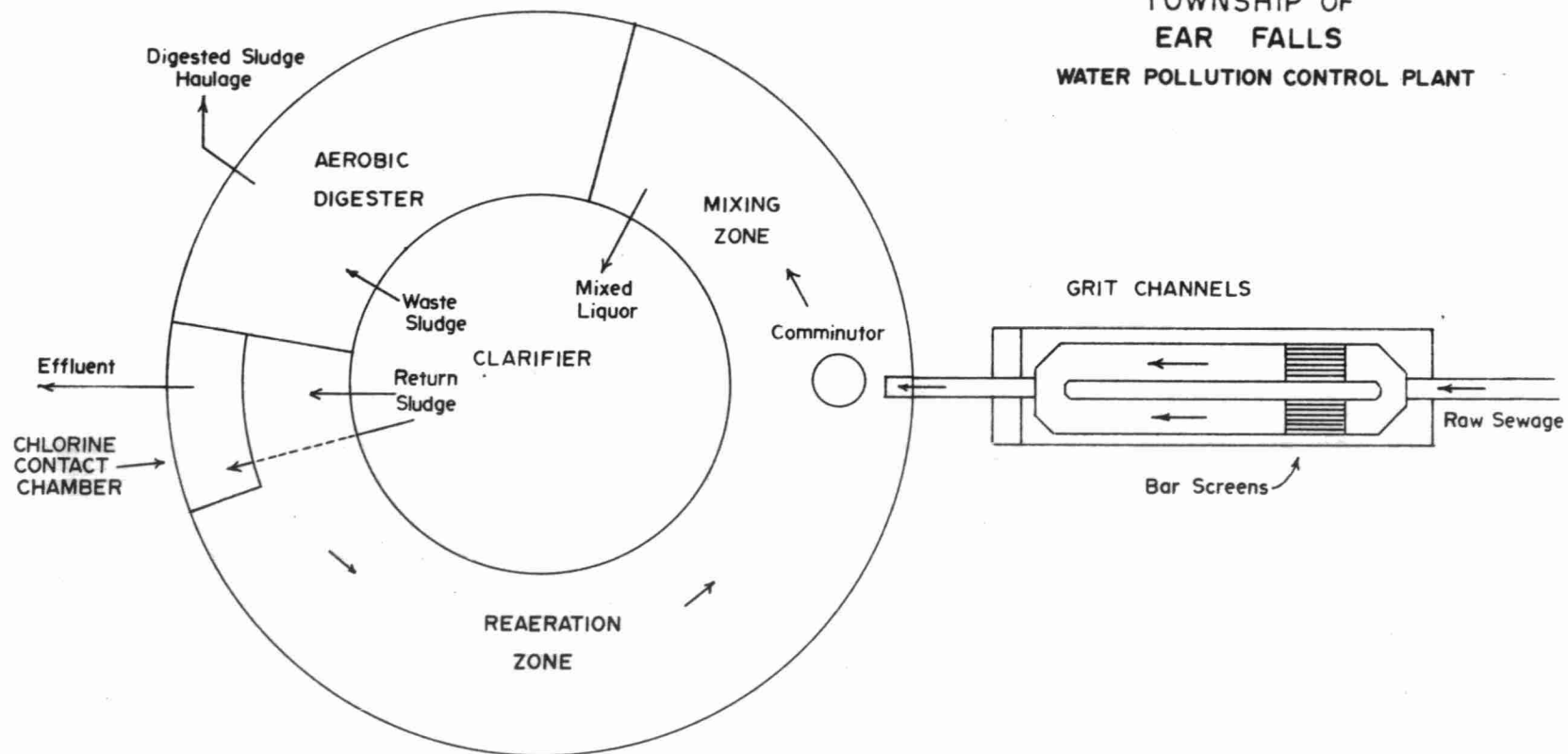
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WATER POLLUTION CONTROL PLANT

TOWNSHIP OF
EAR FALLS
WATER POLLUTION CONTROL PLANT



DESIGN DATA

Project Ear Falls Twp WPCP
Project No. 1-0061-67

Design Flow 0.20 MGD
Design BOD 280 mg/l

Design SS 310 mg/l

LIFT STATION:

Pumps: 2 Type: FLYGT Star Delta
Size: 1750 rpm

GRIT CHANNELS:

2, 1.6' w x 15.0' l x 1.8' swd equipped with bar screens
Volume (each) 270 J.G. Detention (each) 3 min.

OXIGEST PLANT

(Smith & Loveless)

AERATION TANK:

(Mixing and Reaeration zones)

19.65' w x 15.25' swd x 262° arc

Volume: 63534 I.G. Detention 10.9 hours

Comminutor: Type: HELIGEAR Size: 1725 rpm, $\frac{1}{4}$ HP

Blowers: 3 type ROOTS-CONNERSVILLE

Size: 925 rpm 15 HP 275 cfmct 7 psi

CLARIFIER:

19.25' i.d. x 12.8' swd

Volume 23855 I.G. Detention 4.1 hours

AEROBIC DIGESTER:

19.65' w x 15.25' swd x 98° arc

Volume 23248 I.G. Detention 4.0 hours

CHLORINE CONTACT CHAMBER:

3.5w x 15.25' swd x 30° arc

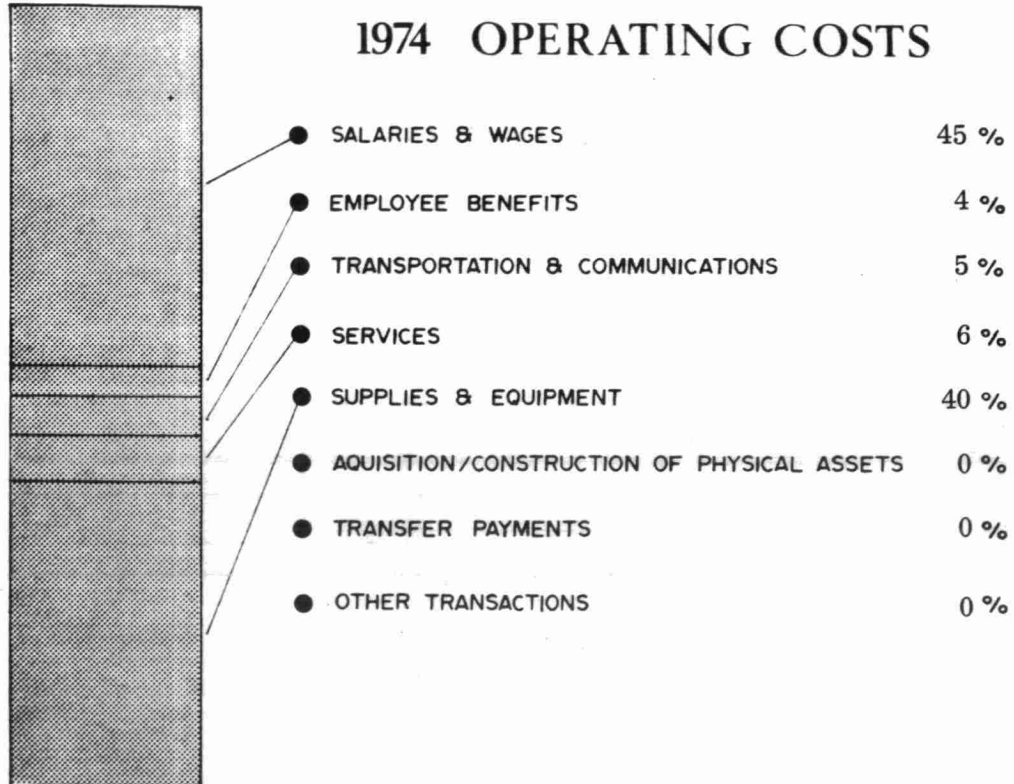
Volume 1618 I.G. Detention 17 minutes

Chlorinator: Type: Wallace & Tiernan

Size: 20 gpm

ANNUAL COSTS

1974 OPERATING COSTS



YEARLY OPERATING COSTS

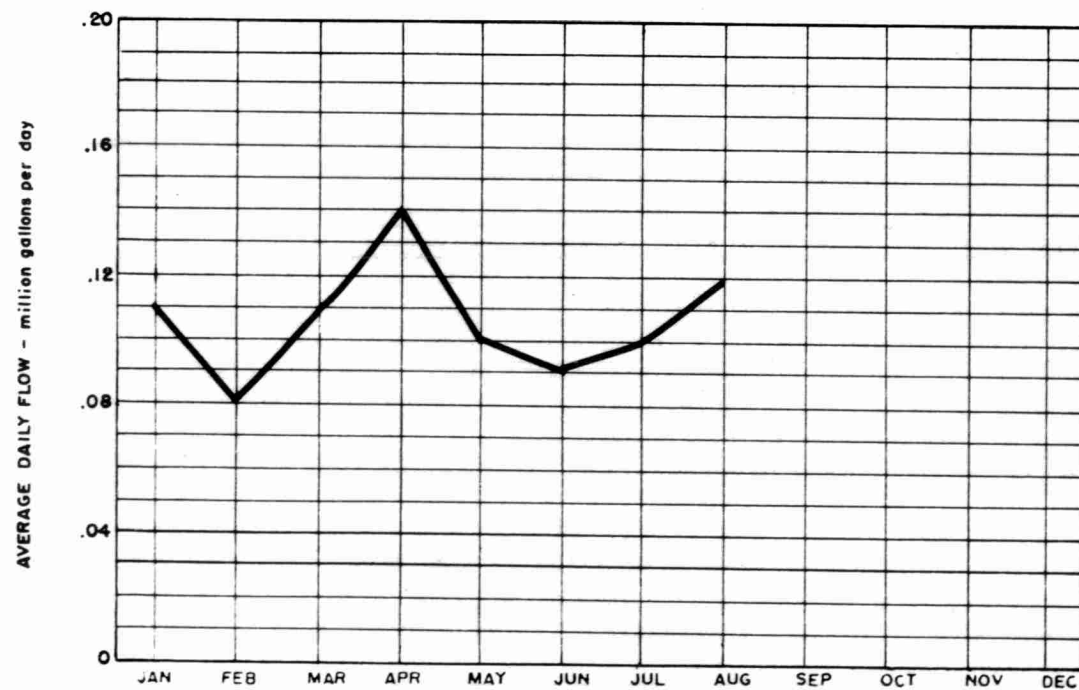
YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS	
			\$/M.G.	¢/lb BOD
1974	44*	33473	761	95

*Estimated

OPERATING EXPENDITURES

Regular Staff	\$ 12187	\$
Casual (Unclassified) Staff	2991	
TOTAL SALARIES AND WAGES		15178
TOTAL EMPLOYEE BENEFITS		1227
TOTAL TRANSPORTATION AND COMMUNICATIONS		1559
Insurance	188	
Sludge Haulage	1098	
Repairs and Maintenance	139	
Other Services	433	
TOTAL SERVICES		1858
Machinery and Equipment	7352	
Chemicals	953	
Utilities	2777	
Other Supplies and Equipment	2569	
TOTAL SUPPLIES AND EQUIPMENT		13651
TOTAL AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS		
TOTAL TRANSFER PAYMENTS		
OTHER TRANSACTIONS		
GRAND TOTAL	GRAND TOTAL	\$ 33473

PROCESS DATA FLOWS

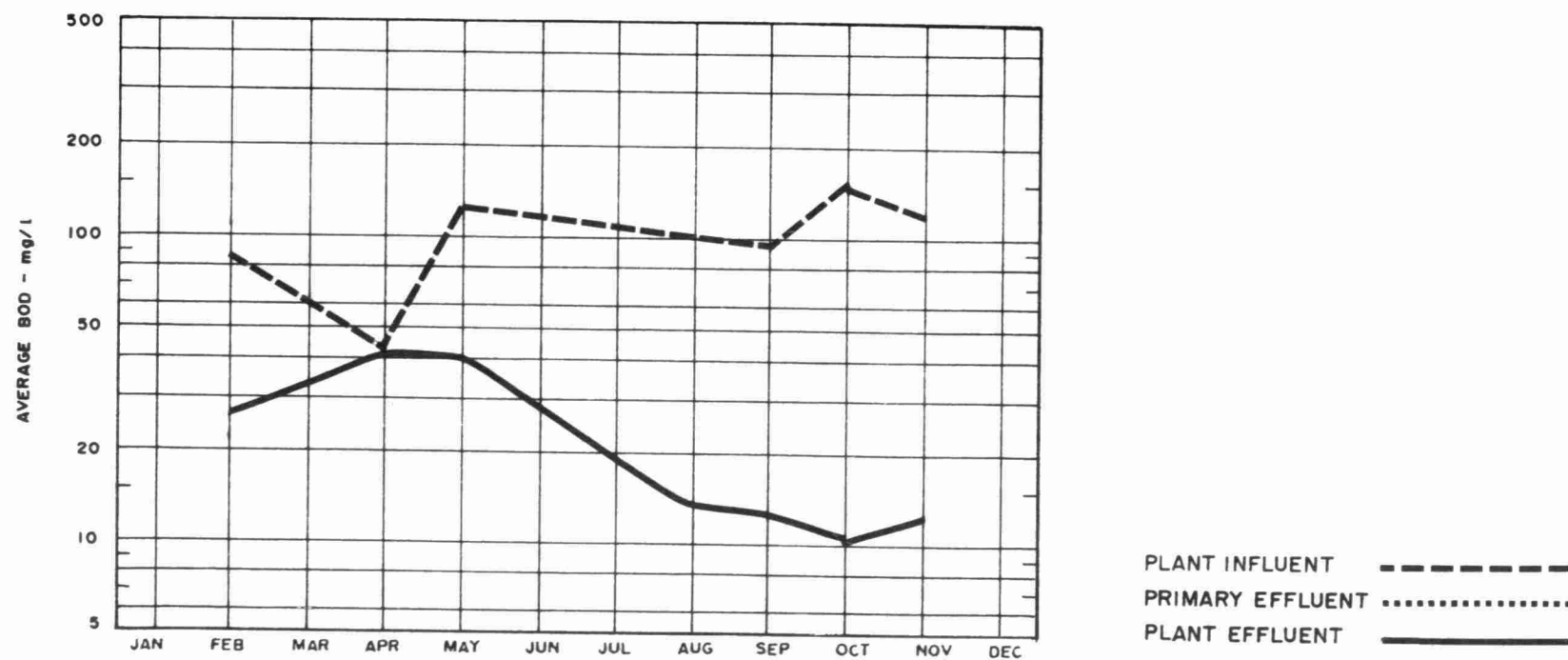


DESIGN CAPACITY - - - - -

PLANT PERFORMANCE

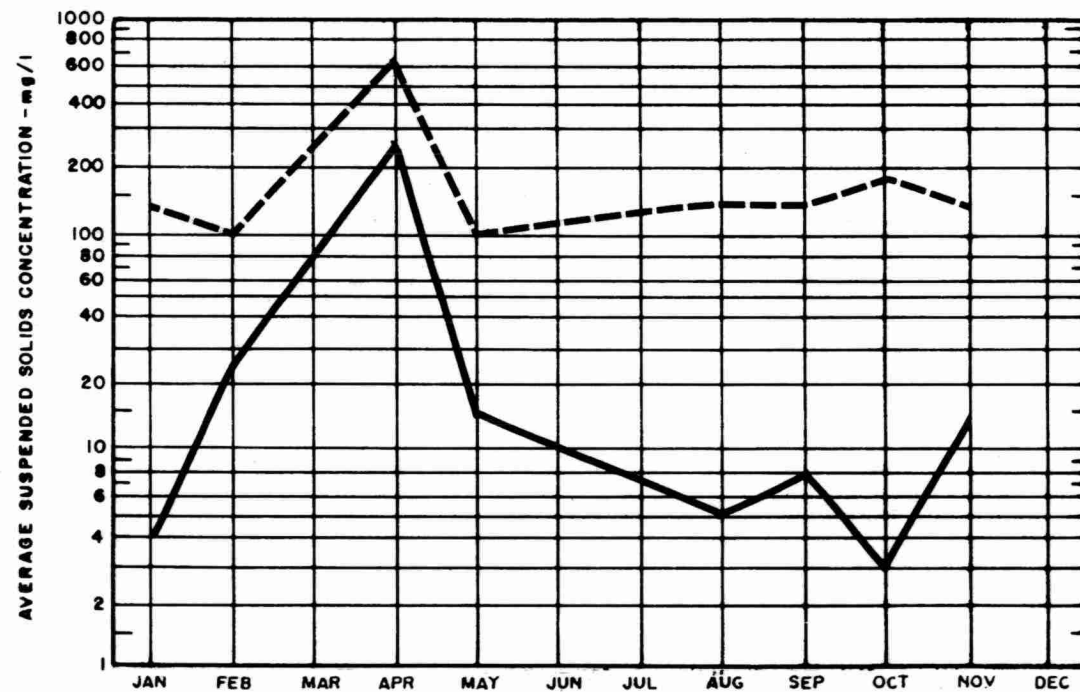
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l P	EFFLUENT mg/l P
						%	10 ³ pounds			%	10 ³ pounds		
JAN	3.34	.11	.13	-	-	-	-	130	4	97	4.2	4.4	2.4
FEB	2.36	.08	.12	85	28	67	1.4	100	25	75	1.8	4.0	4.9
MAR	3.53	.11	.15										
APR	4.10	.14	.25	44	46	-	-	630	270	57	14.8	4.6	3.3
MAY	3.19	.10	.15	130	40	69	2.9	100	15	85	2.7	7.0	4.2
JUNE	2.69	.09	.12	-									
JULY	3.05	.10	.14	-									
AUG	3.81	.12	.19	100	13	87	3.3	145	5	97	5.3	7.8	4.4
SEPT	-	-	-	95	12	87		140	8	94		5.8	2.9
OCT	-	-	-	150	10	93		190	3	98		7.7	3.7
NOV	-	-	-	120	13	89		130	15	88		5.4	3.3
DEC	-	-	-										
TOTAL	44.0	-	-	-	-	-		-	-	-		-	-
AVG.		.12	MAXIMUM .2	102	22	78	3.0	189	39	79	5.5	5.8	3.6
No. of Samples	-	-	-	8	8	-	-	9	9	-	-	9	9

BIOCHEMICAL OXYGEN DEMAND

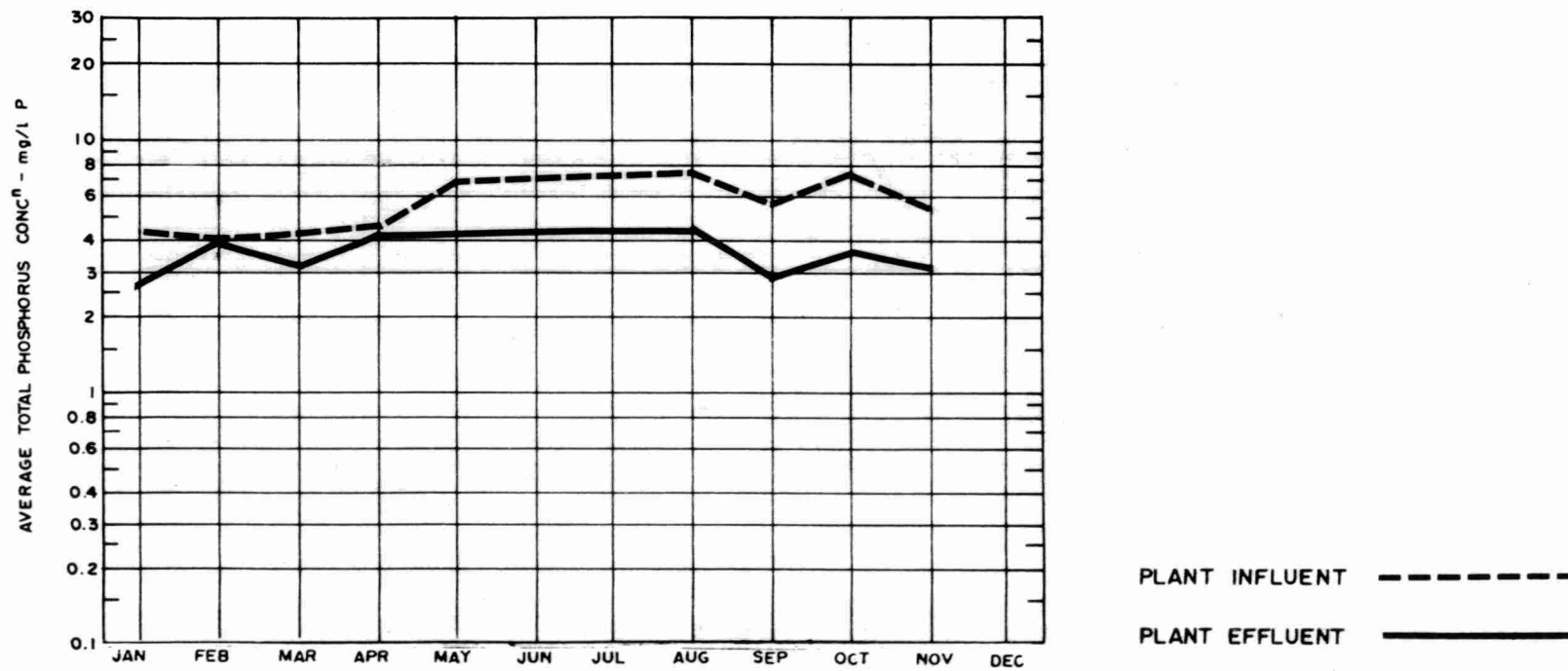


SUSPENDED SOLIDS

PLANT INFLUENT 
PRIMARY EFFLUENT 
PLANT EFFLUENT 



PHOSPHORUS



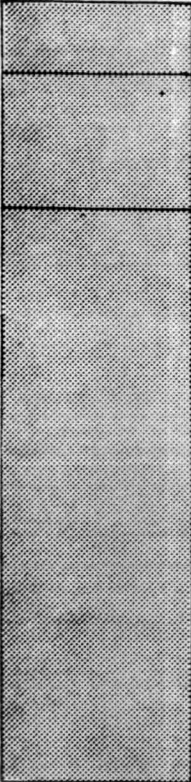
TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	CL ₂ USED	AVG. DOSAGE	MLSS. CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL. SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL. SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	$\frac{1000 \text{ ft}}{\text{lb BOD}}$	10 gallons	mg/l	%	10 ³ gallons	mg/l	%	cubic yards
JAN	58												
FEB	42												
MAR	36			-	-						-	-	
APR	25			7300	.01						11000		
MAY	19			8500	.02						12000		
JUNE	10			-	-						-	-	
JULY	4	48		-	-						-	-	
AUG	20	317		9400	.02						18000	40	
SEPT	4	103		11300	-					15.1	14000	33	9.0
OCT.	8	0		7800	-						17000	39	
NOV	8	0		5200	-					10.4	-	-	6.2
DEC	18	0		-	-						-	-	
TOTAL	252	468	-	-	-	-		-	-	25.5	-	-	15.2
AVG.	5.7 cu. ft/mil gal	5.6	4.7	7000	.02						14000	37	

WATER TREATMENT PLANT

ANNUAL COSTS

1974 OPERATING COSTS

- 
- SALARIES & WAGES
 - EMPLOYEE BENEFITS
 - TRANSPORTATION & COMMUNICATIONS 7 %
 - SERVICES 18 %
 - SUPPLIES & EQUIPMENT 75 %
 - AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS
 - TRANSFER PAYMENTS
 - OTHER TRANSACTIONS

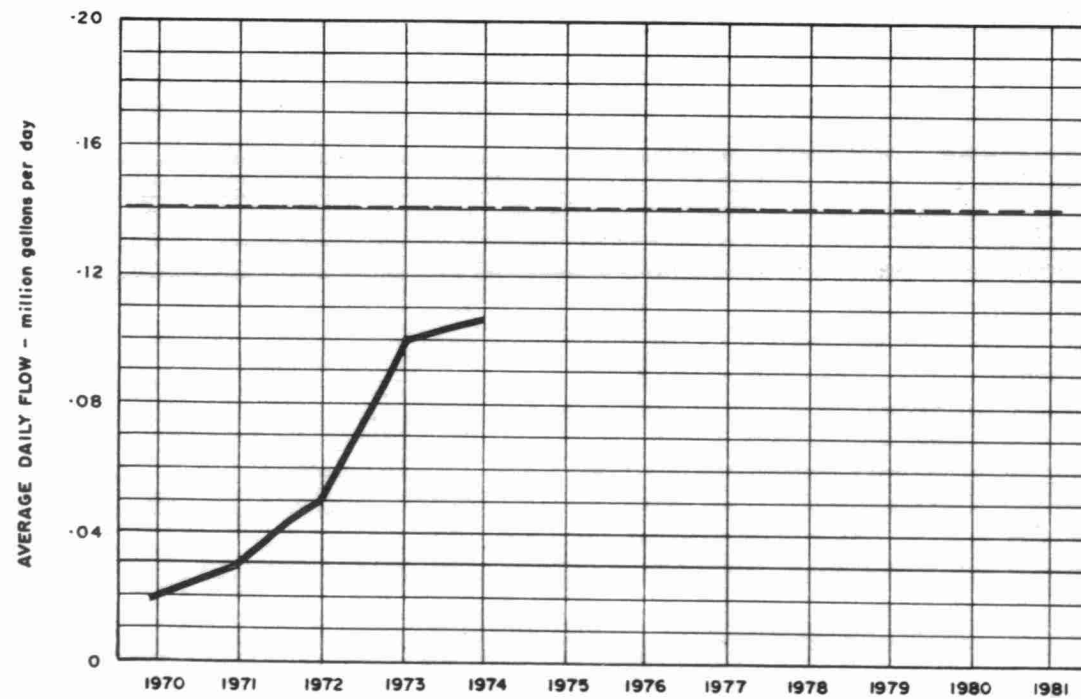
YEARLY OPERATING COSTS

YEAR	WATER TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS
			cents /1000 gal.
1974	39.0	10,455	27

OPERATING EXPENDITURES

Regular Staff	\$ _____	\$ _____
Casual (Unclassified) Staff	_____	
TOTAL SALARIES AND WAGES		_____
TOTAL EMPLOYEE BENEFITS		_____
TOTAL TRANSPORTATION AND COMMUNICATIONS		772
Insurance	197	
Sludge Haulage	_____	
Repairs and Maintenance	1421	
Other Services	211	
TOTAL SERVICES		1829
Machinery and Equipment	671	
Chemicals	1629	
Utilities	3292	
Other Supplies and Equipment	2262	
TOTAL SUPPLIES AND EQUIPMENT		7854
TOTAL AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS		_____
TOTAL TRANSFER PAYMENTS		_____
OTHER TRANSACTIONS		_____
GRAND TOTAL	GRAND TOTAL	\$ 10455

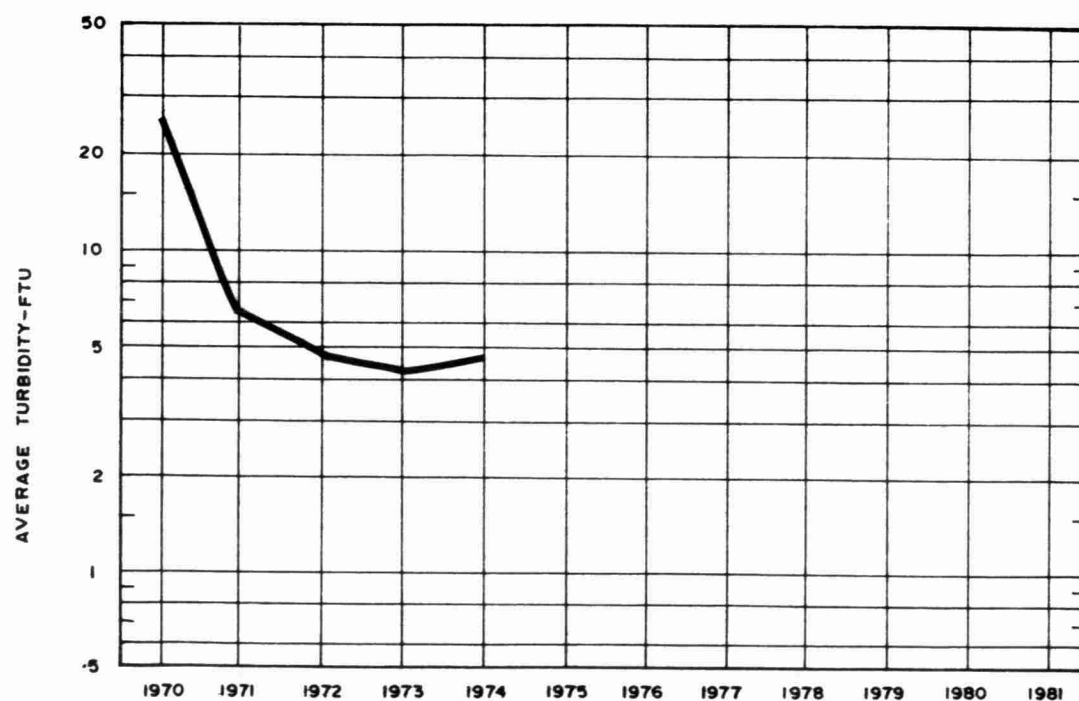
PROCESS DATA FLOWS



PLANT PERFORMANCE

MONTH	FLOWS				RAW WATER		TREATED WATER					
	TOTAL PLANT OUTPUT million gallons	AVERAGE DAILY FLOW million gallons	MAXIMUM DAY'S FLOW million gallons	MAXIMUM RATE mgd	TURBIDITY (AVERAGE) FTU	COLOUR (AVERAGE) App. units	TURBIDITY		COLOUR		TEMPERATURE	
							AVERAGE FTU	MAXIMUM FTU	AVERAGE App. units	MAXIMUM App. units	AVERAGE ° F	MAXIMUM ° F
JAN	4.76	.154	.165		4.5	40	4.5	4.5	40	40		
FEB	4.26	.152	.163		3.5	40	3.0	3.0	20	20		
MAR	4.74	.153	.175		1.6	40	1.8	1.8	20	20		
APR	3.86	.129	.163		2.5	40	2.0	2.0	30	30		
MAY	2.89	.093	.134		2.7	35	2.7	2.7	70	70		
JUNE	3.12	.104	.179		2.4	50	2.5	2.5	40	40		
JULY	3.54	.114	.171									
AUG	2.13	.069	.141		5.4	40	5.5	5.5	30	30		
SEPT	1.56	.052	.075		5.7	45	6.2	6.5	40	50		
OCT	1.85	.060	.116		6.2	50	12.0	12.0	50	50		
NOV	2.10	.070	.100		7.5	40	8.4	8.4	40	40		
DEC	4.14	.133	.180		5.5	30	5.5	5.5	30	30		
TOTAL	38.95											
AVG.		.107	MAXIMUM .180	MAXIMUM	4.4	41	5.0	MAXIMUM 12.0	38	MAXIMUM 70		MAXIMUM

TURBIDITY



CHLORINATION and DISINFECTION

MONTH	RAW WATER					PLANT EFFLUENT		DISTRIBUTION SYSTEM		CHLORINATION			
	NUMBER OF SAMPLES HAVING TOTAL COLIFORM ORGANISMS PER 100 ml OF					NUMBER OF SAMPLES TAKEN	NUMBER HAVING COLIFORM ORGANISMS	NUMBER OF SAMPLES TAKEN	NUMBER HAVING COLIFORM ORGANISMS	TOTAL AMOUNT OF CHLORINE USED pounds	DOSAGE		RESIDUAL IN PLANT EFFLUENT mg/l
	0	1 - 3	4 - 32	33 - 320	> 320						PRE - mg/l	POST - mg/l	
JAN	2	3	0	0	0	2	0	5	0				.4
FEB	3	1	0	0	0	0	0	4	0				.6
MAR	3	0	1	0	0	1	0	3	0				.5
APR	2	2	0	0	0	1	0	3	0				.5
MAY	1	1	2	0	0	3	1	4	0				.5
JUNE	1	0	3	1	0	5	0	10	0				.5
JULY	0	0	0	4	0	4	1	8	0				.5
AUG	0	0	3	2	0	0	0	8	3				.6
SEPT	2	0	1	1	0	0	0	8	0				.5
OCT	0	0	2	3	0	0	0	10	0				.5
NOV	4	0	0	0	0	0	0	4	0				.5
DEC	1	2	2	0	0	0	0	4	0				.5
TOTAL	19	9	14	11	0	16	2	71	3	1500 *			
AVG.	5 (NOTE - Average shown is the GEOMETRIC MEAN)									4 pounds per day		3.8	.5

* Total for year

WATER QUALITY

PROPERTY	RAW WATER				TREATED WATER				DESIRABLE STANDARDS
	NUMBER OF SAMPLES	AVERAGE	MAXIMUM	MINIMUM	NUMBER OF SAMPLES	AVERAGE	MAXIMUM	MINIMUM	
HARDNESS in mg/l as CaCO_3	12	40	46	34	12	39	42	32	80 - 100
ALKALINITY in mg/l as CaCO_3	12	37	46	26	12	37	46	26	30 - 100
IRON in mg/l Fe	12	.38	.60	.20	12	.40	.90	.20	Less than 0.3
CHLORIDE in mg/l Cl^-	12	1	<1	1	12	1	5	<1	Less than 250
pH in pH units	12	7.1	7.5	6.8	12	7.2	7.5	6.9	7.0 - 8.5

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